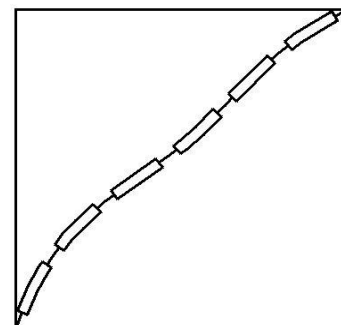


SC-8 SEDIMENT RETENTION FIBER ROLLS

ITD Standard Drawing P-1-B

QPL Category: 212 Sediment Retention Fiber Rolls



Standard Symbol

Definition and Purpose

A sediment retention fiber roll consists of wood excelsior, rice or wheat straw, compost, or coconut fibers that are rolled or bound into a tight tubular roll and placed on the toe and face of slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow and provide removal of sediment from the runoff. Sediment retention fiber rolls may also be used for inlet protection and as check dams or shoreline protection under certain situations. Sediment retention fiber rolls include degradable fiber wattles, degradable logs, and compost socks.

Appropriate Applications

- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the Engineer.
- Sediment retention fiber rolls may be used as check dams in unlined ditches if approved by the Engineer (refer to SC-2 [Check Dams]).
- Sediment retention fiber rolls may be used for drain inlet protection if approved by the Engineer (refer to SC-6 [Inlet/Outlet Protection]).
- Degradable logs may be used for shoreline protection as approved.
- Sediment retention fiber rolls may be located:
 - Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
 - Below the toe of exposed and erodible slopes.
 - Down-slope of exposed soil areas.

BMP Objectives

- | | |
|-------------------------------------|-----------------------|
| <input checked="" type="checkbox"/> | Perimeter Control |
| <input type="checkbox"/> | Slope Protection |
| <input checked="" type="checkbox"/> | Borrow and Stockpiles |
| <input checked="" type="checkbox"/> | Drainage Areas |
| <input checked="" type="checkbox"/> | Sediment Trapping |
| <input checked="" type="checkbox"/> | Stream Protection |
| <input type="checkbox"/> | Temporary Stabilizing |
| <input type="checkbox"/> | Permanent Stabilizing |

- Around temporary stockpiles.
- Along the perimeter of a project.

Limitations

- Erosion may occur if sediment retention fiber roll is not adequately trenched in.
- Sediment retention fiber rolls at the toe of slopes greater than 1:5 may require the use of 20-inch-diameter rolls or installations achieving the same protection (i.e., stacked smaller diameter fiber rolls, etc.).
- Sediment retention fiber rolls may be used for drainage inlet protection if they can be properly anchored.
- Sediment retention fiber rolls are difficult to move once saturated.
- Sediment retention fiber rolls could be transported by high flows if not properly staked and trenched in.
- Sediment retention fiber rolls have limited sediment capture zone.
- Sediment retention fiber rolls shall not be used on slopes subject to creep, slumping, or landslide.

Qualified Products List Criteria

- All sediment retention fiber roll products shall meet the State of Idaho State Department of Agriculture Seed Laboratory or the North American Weed Management Association (NAWMA) noxious weed-free certification requirements prior to approval.
- Stakes shall be made from untreated Douglas fir, hemlock, or pine species and shall be a minimum of 1x1x24 inches.

Degradable Fiber Wattles

Degradable fiber wattles shall be manufactured from natural straw, coir (coconut), composted material, wood fibers, or a combination of; and wrapped in approved degradable netting made of plastic, natural fiber such as jute, sisal, cotton, hemp, or burlap. All material including netting shall have a life expectance of approximately one year. Degradable fiber wattles shall have a minimum diameter of 8 in. Degradable fiber wattles that are 8 inches to 11 inches in diameter shall have a minimum weight of one pound per linear foot. Fiber wattles with a diameter greater than 11 inches shall have a minimum weight of three pounds per linear foot. The ends shall be secured tightly with degradable twine.

Degradable Logs

Degradable logs shall be made of 100 percent durable coconut (coir) fiber or other approved material. Material shall be uniformly compacted within woven netting made of coir twine with minimum strength of 80 lbs tensile strength. The netting shall have nominal 2 inch by 2 inch openings. The log segments shall have a maximum length of 20 feet and a minimum density of 7 lbs/cf. Rope ties shall be of 1/4 inch diameter commercially available hemp rope. All material including netting shall have a life expectance of greater than one year.

Compost Sock

Compost sock shall have a minimum diameter of 8 inches and shall be free from any type of preservative. Sock shall be a mesh tube, oval to round in cross section and shall be clean, evenly woven, and free of encrusted concrete or other contaminating materials and free from cuts, tears, broken or missing yarns and thin, open or weak places. Sock shall have a minimum tensile strength of 44 psi. Sock shall be composed of either degradable plastic or polyester netting or composed of biodegradable jute, sisal, burlap, or coir fabric. Sock shall have a minimum durability of one year after installation.

Compost material shall meet the following criteria:

- Provide compost that is the result of the biological degradation and transformation of plant-derived materials under controlled conditions designed to promote aerobic decomposition.
- Provide compost that is stable with regard to oxygen consumption and carbon dioxide generation. Stability shall be 7 or below in accordance with Test Methods for Evaluation of Compost and Composting (TMECC) 05.08-B, Carbon Dioxide Evolution Rate.”
- Provide compost that is mature with regard to its suitability for serving as a soil amendment or in erosion and sediment control applications. Maturity shall be greater than 80 percent in accordance with TMECC 05.05A, “Germination and Root Elongation.”
- Provide compost that is certified in the State of Idaho by an authorized (or approved) state agency and declared “noxious weed free.”
- Provide compost that has a moisture content that has no visible free water or dust produced when handling the material.
- Provide compost that has a pH shall be between 6.0 and 8.2 when tested in accordance with TMECC 35 04.11-A, “1:5 Slurry pH.”
- Provide compost that has a manufactured inert material (plastic, concrete, ceramics, metal, etc.) of the compost less than 0.5 percent on a dry weight or volume basis, whichever provides for the least amount of foreign material.
- Provide compost that has a minimum organic matter of the compost shall be 40 percent dry weight basis as determined by TMECC 05.07A, “Loss-On-Ignition Organic Matter Method.”
- Provide compost that has a soluble salt contents of the compost shall be less than 3.0mmhos/cm tested in accordance with TMECC 04.10-A, “1:5 Slurry Method, Mass Basis.”
- Provide a compost product that is composed of a minimum of 65 percent by volume from recycled plant waste. A maximum of 35 percent by volume of other approved organic waste and/or biosolids may be substituted for recycled plant waste.
- Test samples using the Solvita Compost Maturity Test by the Contracting Agency at the Engineer’s discretion. Provide fine compost that has a score of 6 or greater on the Solvita

Compost Maturity Test. Provide coarse compost that has a score a 5 or greater on the Solvita Compost Maturity Test.

Removal

- Degradable fiber wattles and degradable logs are typically left in place.
- Compost socks are typically removed as directed by the Engineer.
- If sediment retention fiber rolls are removed, sediment accumulation shall be collected and disposed of, and holes, trenches, depressions, or any other ground disturbance shall be filled and compacted to blend with adjacent ground.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications.
- Repair or replace split, torn, unraveling, or slumping sediment retention fiber rolls.